

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Withdrawn) A method for removing partially carrier bound substances from blood comprising a blood circuit, a fluid circuit and a filter having a semipermeable membrane separating a fluid compartment from a blood compartment, where blood is directed through the blood compartment and a cleaning fluid is directed through the fluid compartment characterized in that

- a mass transfer coefficient  $k_oA$  of the filter is at least 2000 ml/min;
- a ratio between the mass transfer coefficient  $k_oA$  of the filter and a blood flow rate is at least 5;
- a cleaning fluid flow rate is at least 2000 ml/min; and
- a ratio between the cleaning fluid flow rate and the blood flow rate is at least 5.

2. (Withdrawn) A method according to claim 1 where

- the ratio between the mass transfer coefficient  $k_oA$  of the filter and the blood flow rate is at least 10; and

- the ratio between the cleaning fluid flow rate and the blood flow rate is at least 10.

3. (Withdrawn) A method according to claim 1 or 2 where

- the mass transfer coefficient  $k_oA$  of the filter is at least 5000 ml/min; and
- the cleaning fluid flow rate is at least 5000 ml/min.

4. (Withdrawn) A method according to claim 1, 2 or 3 where the parameters are chosen in relation to the product of a blood flow rate  $Q_b$  and a factor  $\alpha$  denoting the total amount of substance to be removed in relation to the fraction dissolved in plasma and

- the mass transfer coefficient  $k_oA$  of the filter is at least 10% of this product; and
- the cleaning fluid flow rate is at least 10% of this product.

5. (Withdrawn) A method according to claim 4 where

- the mass transfer coefficient  $k_oA$  of the filter is at least 100% of this products;

and/or

- the cleaning fluid flow rate is at least 100% of this product; and/or
- the cleaning fluid flow rate is at least 100% of this product.

6. (Withdrawn) A method for removing partially carrier bound substances from blood comprising a blood circuit, a fluid circuit and a filter having a semipermeable membrane separating a fluid compartment from a blood compartment, where blood is directed through the blood compartment and a cleaning fluid is directed through the fluid compartment characterized in that

- a mass transfer coefficient  $k_oA$  of the filter is at least 2000 ml/min;
- a ratio between the mass transfer coefficient  $k_oA$  of the filter and a blood flow rate is at least 5; and
- the cleaning fluid contains a carrier that is able to bind the partially carrier bound substances in the blood.

7. (Withdrawn) A method for removing partially carrier bound substances from blood comprising a blood circuit, a fluid circuit and a filter having a semipermeable

membrane separating a fluid compartment from a blood compartment, where blood is directed through the blood compartment and a cleaning fluid is directed through the fluid compartment characterized in that

- the membrane has been pretreated with a fluid containing a carrier that is able to bind the partially carrier bound substances in the blood;

- a cleaning fluid flow rate is at least 2000 ml/min; and

- a ratio between the cleaning fluid flow rate and the blood flow rate is at least 10.

8. (Withdrawn) A method according to claim 6 where the membrane has been pretreated with a fluid containing a carrier that is able to bind the partially carrier bound substances in the blood.

9. (Withdrawn) A method according to claim 7 where the cleaning fluid contains a carrier that is able to bind the partially carrier bound substance in the blood.

10. (Withdrawn) A method according to any of claims 6, 7, 8 or 9 where the carrier is serum albumin.

11. (Withdrawn) A method according to claim 10 where the concentration of the serum albumin is above 10 g/l.

12. (Previously Presented) A method for removing partially carrier bound substances from blood comprising a blood circuit, a fluid circuit, and a filter having a semipermeable membrane separating a fluid compartment from a blood compartment, the method comprising:

- directing a mixture of blood and a cleaning fluid through the blood compartment;
- and

- applying a pressure gradient across the membrane to create an ultrafiltration into

the fluid compartment equal in size to the sum of a flow rate of the cleaning fluid and a desired weight loss rate of a patient, wherein

a water permeability coefficient  $L_p A$  of the filter is at least  
10 ml/min/mm Hg;

the cleaning fluid flow rate is at least 1000 ml/min; and

a ratio between the cleaning fluid flow rate and a blood flow rate is at  
least 5.

13. (Previously Presented) A method according to claim 12, wherein the filter is replaced by several filters arranged in series or parallel, or a combination thereof.

14. (Previously Presented) A method according to claim 12 or 13, wherein the blood is heated before being returned to the patient.

15. (Previously Presented) A method according to claim 14, wherein the heating of the blood is performed in a final dialyzer along a blood path before the blood is returned to the patient.

16. (Withdrawn) A device adapted to remove partially carrier bound substances from blood comprising a blood circuit, a fluid circuit and a filter having a semipermeable membrane separating a fluid compartment from a blood compartment, where blood is directed through the blood compartment and a cleaning fluid is directed through the fluid compartment characterized in that

- a mass transfer coefficient  $k_o A$  of the filter is at least 2000 ml/min;
- a ratio between the mass transfer coefficient  $k_o A$  of the filter and a blood flow rate is at least 5;
- a cleaning fluid flow rate is at least 2000 ml/min; and

- a ratio between the cleaning fluid flow rate and the blood flow rate is at least 5.

17. (Withdrawn) A device according to claim 16 where

- the ratio between the mass transfer coefficient  $k_oA$  of the filter and the blood flow rate is at least 10; and

- the ratio between the cleaning fluid flow rate and the blood flow rate is at least 10.

18. (Withdrawn) A device according to claim 16 or 17 where

- the mass transfer coefficient  $k_oA$  of the filter is at least 5000 ml/min; and
- the cleaning fluid flow rate is at least 5000 ml/min.

19. (Withdrawn) A device according to claim 16, 17 or 18 where the parameters are chosen in relation to the product of a blood flow rate  $Q_b$  and a factor  $a$  denoting the total amount of substance to be removed in relation to the fraction dissolved in plasma and

- the mass transfer coefficient  $k_oA$  of the filter is at least 10% of this product; and
- the cleaning fluid flow rate is at least 10% of this product.

20. (Withdrawn) A device according to claim 19 where

- the mass transfer coefficient  $k_oA$  of the filter is at least 100% of this product; and/or

- the cleaning fluid flow rate is at least 100% of this product.

21. (Withdrawn) A device adapted to remove partially carrier bound substances from blood comprising a blood circuit, a fluid circuit and a filter having a semipermeable membrane separating a fluid compartment from a blood compartment,

where blood is directed through the blood compartment and a cleaning fluid is directed through the fluid compartment characterized in that

- a mass transfer coefficient  $k_oA$  of the filter is at least 2000 ml/min;
- a ratio between the mass transfer coefficient  $k_oA$  of the filter and a blood flow rate is at least 5; and
- the cleaning fluid contains a carrier that is able to bind the partially carrier bound substances in the blood.

22. (Withdrawn) A device adapted to remove partially carrier bound substances from blood comprising a blood circuit, a fluid circuit and a filter having a semipermeable membrane separating a fluid compartment from a blood compartment, where blood is directed through the blood compartment and a cleaning fluid is directed through the fluid compartment characterized in that

- the membrane has been pretreated with a fluid containing a carrier that is able to bind the partially carrier bound substances in the blood;
- a cleaning fluid flow rate is at least 2000 ml/min; and
- a ratio between the cleaning fluid flow rate and the blood flow rate is at least 10.

23. (Withdrawn) A device according to claim 21 where the membrane has been pretreated with a fluid containing a carrier that is able to bind the partially carrier bound substances in the blood.

24. (Withdrawn) A device according to claim 22 where the cleaning fluid contains a carrier that is able to bind the partially carrier bound substances in the blood.

25. (Withdrawn) A device according to any of claims 21, 22, 23 or 24 where the carrier is serum albumin.

26. (Withdrawn) A device according to claim 25 where the concentration of the serum albumin is above 10 g/l.

27. (Currently Amended) A device configured to remove partially carrier bound substances from blood comprising a blood circuit, a fluid circuit, and a filter having a semipermeable membrane separating a fluid compartment from a blood compartment, provided with

means for mixing blood and a cleaning fluid and directing said mixture through the blood compartment, and

means to apply a pressure gradient across the membrane to create an ultrafiltration into the fluid compartment equal in size to the sum of a flow rate of the cleaning fluid and a desired weight loss rate of the patient, wherein

the filter has a water permeability coefficient  $L_p A$  of at least 10 ml/min/mm Hg;

the device is configured to sustain a cleaning fluid flow rate is of at least 1000 ml/min to the filter; and

the device is configured to maintain a ratio between the cleaning fluid flow rate and a blood flow rate to the filter is of at least 5.

28. (Previously Presented) A device according to claim 27, wherein the filter is replaced by several filters arranged in series or parallel, or a combination thereof.

29. (Previously Presented) A device according to claim 27 or 28, wherein a heater is arranged for heating the blood before it is returned to the patient.

30. (Previously Presented) A device according to claim 29, wherein the heater is a final dialyzer along the blood path before the blood is returned to the patient.